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THE HABITAT-NICHE OF AMERICAN NOSODENDRIDAE

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In an attempt to learn more about the ecology of several species of *Drosophila*, the slime fluxes (i.e., bleeding wounds of trees which become infected with microorganisms) of *Quercus kelloggii*, the California black oak, and *Abies concolor*, the white fir, have been examined for adults and larvae of various insects in the Yosemite region of California. A more detailed list of forms utilizing these sites for feeding and breeding will soon appear in *ECOLOGY*. Suffice it to say for the present that among the Coleoptera the chief exploiters of this microhabitat are the nitidulid *Calopterus truncatus* (Rand), the staphylinids *Aliochara sensu latu*, and three species of *Atheta*, and the nosodendrid *Nosodendron californicum* Horn. All of these have been found in oak slime fluxes. *Nosodendron* also has been found in white fir exudations.

Taken at face value, this information may not appear significant. However, a companion study has been made of forms occurring in fluxes of trees such as *Ulmus americana* on the campus of the University of Chicago, and *Acer saccharum* at Davis Woods, Smith, La Porte County, Indiana. Among the beetles, again the family Nosodendridae is represented, in this case by *Nosodendron unicolor* Say, the only other species of this family known to occur in the United States. Vogt¹ has reported the occurrence of this species in sapflows of *Quercus alba*, the white oak, on the University of Maryland campus.

It is evident that the habitat-niche of this family of beetles is the slime flux. Observations of *Nosodendron* reveal that this is a gregarious beetle: Wherever adults are found, usually several adult specimens can be obtained at once, and all are clustered within a very small area.

¹The William H. Miner Agricultural Research Institute, Chazy, New York.

²Vogt, G. B. Occurrence and Records of Nitidulidae. The Coleopterists' Bull., Vol. 4, No. 6, 81-91. 1950.

Furthermore, larvae of these insects, if present, occur near their parents, especially in the older instars. Both adults and larvae can be found only in very wet areas of the wound, suggesting the need for a highly humid environment.

Beetles of this family are reported to be carnivorous. If this is so, the diet of *N. californicum* must consist of larvae of Drosophilidae, Sciaridae, Phoridae, Psychodidae, Heleidae, Tendipedidae and Aulacigastridae, larvae of which can be found in abundance at these sites. In addition, it is possible that Nematodes and mites as well as other small Arthropods (Collembola, Corrodentia, etc.), may be used as food, particularly by very young instars. Similar food is probably consumed by *N. unicolor*.

Nosodendron californicum serves as one of the hosts of a parasitic mite belonging to the family Canestriniidae. Mites of this family are known to parasitize beetles.

I am indebted to Mr. Henry Dybas, Chicago Natural History Museum for classifying the nosodendrids and nitidulids; Dr. D. H. Kistner University of Rochester, and Dr. C. H. Seevers, Chicago Natural History Museum, for identification of staphylinids; Dr. M. R. Wheeler, University of Texas, for classifying Aulacigastridae and Drosophilidae; Dr. A. Stone, USDA, for identifying Sciaridae and Psychodidae; Dr. W. W. Wirth, USDA, for naming the Heleidae, Phoridae, and Tendipedidae; and Dr. E. W. Baker for identifying the mites.

EARLIEST RECORD OF CARABUS NEMORALIS IN SAN FRANCISCO, CALIFORNIA

In his 1945 review (Entomologica Americana, N.S. 24 (3): 128) Van Dyke gave 1923 as the earliest record for *C. nemoralis* Müller in San Francisco. This overlooks his own statement of 1924 (Pan-Pacific Entomologist, 1 (2): 78) that it had been found "... about five years ago. . . ." This was taken as a definite record for 1919 by Essig (1931. A History of Entomology, p. 285) and by Hatch (1933. Pan-Pacific Entomologist, 9 (3): 118).

However, there is an overlooked factual record for 1919 or earlier by J. C. Huguenin in Volume 1 of the two separately published volumes of the Proceedings of the Pacific Coast Entomological Society. On an unnumbered page, chronologically page 159, which carries the last part of the Minutes of the 71st meeting, held on March 1, 1919, there is the following: "Mr. Van Duzee exhibited two boxes of Peruvian Coleoptera recently secured by the California Academy of Sciences; Mr. Huguenin, a specimen of *Carabus Nemoralis* taken in Golden Gate Park, and. . . ."

The actual dates of publication of the parts of this Volume 1 are not known (see J. W. MacSwain, 1951. Pan-Pacific Entomologist, 27 (3): 106-109. Also the cited Proceedings, Minutes of the 75th and 79th meetings), but the part of six unnumbered pages which includes the Minutes of the 71st meeting may be presumed to have appeared in 1919, and certainly came out before February, 1921.—HUGH B. LEECH, California Academy of Sciences, San Francisco.